

# NASA News

National Aeronautics and  
Space Administration



Goddard Space Flight Center  
Wallops Flight Facility  
Wallops Island, VA 23337-5099

---

**For Release:**  
September 1, 2000

Keith Koehler  
Telephone: 757-824-1579  
[Keith.A.Koehler.1@gsfc.nasa.gov](mailto:Keith.A.Koehler.1@gsfc.nasa.gov)

RELEASE NO: 00-18

## Local Student Experiments Ready for Flight on Shuttle Atlantis

Eye lenses, seeds, water, DNA and steel will be among the components tested and studied by students across the United States and throughout the world as part of experiments flying on the Space Shuttle Atlantis, STS-106, scheduled for launch Sep. 8 from the NASA Kennedy Space Center, Fla.

Thirteen passive experiments will fly on STS-106 as part of NASA's Space Experiment Module (SEM) program, which is managed by the Goddard Space Flight Center's Wallops Flight Facility in Wallops Island, Va. This is the eighth flight of SEM.

The SEM program is an educational initiative to increase access to space for students in kindergarten through the university level. Since its first flight in 1996, SEM has allowed tens of thousands of students in the United States and other countries to fly their experiments in space.

SEM-08 experiments and the sponsoring organization include:

**Water, Water Everywhere** - Town of Tonawanda School District, Buffalo, NY; Edgemont Union Free School District, Scarsdale, NY; Auxiliary Services for High Schools, New York City Board of Education.

This experiment shares a module with "Process of Germination and Plant Growth." Students will observe the effects of microgravity, temperature and radiation on water samples from natural water bodies.

-more-

**Houston, We Have an Eye Problem** - Irwin Altman School 172, Floral Park, NY.

The purpose of this experiment is to determine if the high radiation environment of space will cause the layers of eye lenses to become cloudy and transmit less light. Eye lenses from sheep and cows will be used in this investigation. Contact lenses also will be tested to determine the radiation effects on the amount of light transmission.

**Investigation of Antibiotic Resistant Mutations in a Microgravity Environment** - Shoreham-Wading River High School Science Research Program, Shoreham, NY.

The purpose of this experiment is to analyze the differences in mutation rates of antibiotic resistant plasmid DNA exposed to microgravity as compared to Earth's gravity.

**R.S.V.P. (Rams Space Variety Package)** - Parkside High School, Salisbury, Md.

Students will study the effect that the space environment has on a variety of materials such as seeds, film, mini cassette tapes and a radiation dosimeter.

**The Pittsburgh Steelers in Space** - The DePaul Institute for the Deaf, Pittsburgh, Pa.

Through the experiment students will determine the effect of microgravity and radiation on the process of oxidation of various types of steel and the minerals involved in the manufacture of steel.

**Medicine Cabinet in Space** - North Kingstown High School, North Kingstown, R.I.; Cannon School, Concord, N.C.; The Williston Northampton School, Easthampton, Mass.; South Middle School, St. Peters, Mo.; Holy Family School, Harrisburg, Pa.; Ramstein American High School, Ramstein Air Base, Germany.

The experiment is designed to determine how commonly used medicine cabinet items, that could potentially be used in a long-term space mission, are altered by an outer space environment.

**Mars Lunch Box** - Trinity Lutheran School, Cedar Rapids, Iowa, partnered with students from Wales, United Kingdom; Washington Jr. High School, Rock Island, Ill., partnered with students in Australia; Northside Middle School, Hampton, Va., partnered with students in Iceland.

The purpose of the experiment is to determine the effect of space travel upon the growth of vegetable seeds.

**SINBAD (The Scientific and Instructional Ballast Alternative Device)** - Florida Institute of Technology, Geospace Physics Laboratory, Melbourne, Fla.

The purpose of the experiment is four-fold: 1) study the frequencies of the Orbiter during launch, orbit and landing with a Thread Resonance Indicator; 2) study the effect of space flight on palm tree seeds; 3) expand on the CAN-DO project in relation to the effect of popcorn in space; and 4) study the reaction of acrylic latex caulking and its outgassing of water vapor.

-more-

**PEESOIL** - Gates Chili High School, Rochester, N.Y.; Mynderse Academy, Seneca Falls, N.Y.; Northampton High School, Northampton, Mass.

The students are studying if microgravity and radiation has an effect on the fertility of soil samples as measured by the biodiversity of organisms. Biodiversity is determined by the average number of different organisms found before and after exposure to space.

**Process of Germination and Plant Growth** - Frank Elementary School, Guadalupe, Ariz.

This experiment shares a module with "Water, Water Everywhere." The purpose of the experiment is to determine effects the space environment has on seed germination and plant growth. Kentucky Wonder and Quest seeds will be used in this investigation.

Three experiments from Anne Arundel County Public Schools, Md., will share one module.

**Spaced Popped Popcorn** - South Shore Elementary School, Crownsville, Md.

Students predict that the factors of microgravity and radiation experienced in space will affect the physical characteristics of unpopped popcorn and that the popcorn will pop at a different rate and volume than the control group.

**Bounce and Stretch** - South Shore Elementary School

Students predict factors of microgravity and radiation will affect the physical characteristics of elastic materials including balls and rubber bands.

**Germ Killers in Space** - Walter S. Mills-Parole Elementary, Annapolis, Md.

The experiment will study the effect of microgravity, radiation and temperature changes on mouthwash and antibacterial hand-gel.

The SEM program originates from the Get-Away Special (GAS), an on-going program in the Shuttle Small Payloads Project that had its initial flight in 1982. Recognizing the need to provide easy access to space for all students, NASA began the SEM Program in 1995.

SEM focuses on the educational aspect of creating the experiment rather than the complexities of engineering. In the SEM program the experiment container or "module" is provided by NASA, encouraging a greater participation from all ages of students to explore the science of space exploration. Students create, design and build experiments with help from teachers or mentors. The experiments - which can be simple or complicated, active or passive - are placed in half-moon or "D" shaped modules. Ten modules mount on the SEM support structure, five on each side. The SEM support structure then mounts in a GAS canister.

More information about the Space Experiment Module program can be found at

<http://www.wff.nasa.gov/~sspp/sem/sem.html>

-end-